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# A Comprehensive Study on the Efficacy of Minimally Invasive Surgery for Multiple Uterine Fibroids

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**Abstract:** ***Background*: Uterine leiomyomas, the most common benign gynecological tumor [1], usually occur in females of reproductive age. Fibroids affect 20 - 50% of women of reproductive age, while its presence in the adolescent population has not been well documented. The etiology of uterine fibroids is unclear; however, their growth is regulated by ovarian steroids and growth factors. Multiple uterine leiomyoma's represents a great challenge for diagnosis and treatment. Myomectomy is the preferred surgical treatment in reproductive - aged women who want to retain their uterus. We present a case report of a multiple uterine fibroids detected in a 45 - year - old nulliparous single woman desirous of future fertility. The patient underwent myomectomy and histopathology was suggestive of leiomyomas with degeneration. This case confirms the efficiency, reliability, and safety of a minimally invasive surgical approach for removing multiple uterine myomas. Thus, Laparoscopic Myomectomy is the preferred procedure for those in view of preserving fertility.***

**Keywords:** Multiple Uterine Leiomyomas, Laparoscopic Myomectomy, fertility

## 1. Introduction

Uterine fibroids are the most common tumour of the female reproductive tract that occur in approximately 25% of women of reproductive age. They are frequently asymptomatic but when they do cause symptoms they typically relate to menstrual problems, sub - fertility, or symptoms associated with the size of fibroids like pain in abdomen, constipation or urinary problems. The average growth rate of fibroids is about 0.5cm/year in diameter but the growth of 3cm/year or greater has also been observed. [2] They can be sub mucosal, intramural or sub serous in location. Large uterine fibroids can cause pain, constipation, increased frequency of micturition and heavy menstrual bleeding. Diagnosis of fibroid is made with by either ultrasound or magnetic resonance imaging (MRI). The latter is particularly suitable for large fibroids and allowing the number to be determined more easily than through an ultrasound. However, ultrasound particularly with modern equipment is very accurate for those with fibroids below 10cm in size. The asymptomatic tumours can be left untreated as long as they are monitored closely as malignancy is very unusual. [3] The traditional treatment is hysterectomy for those who have completed their childbearing and myomectomy for those who wish to retain the uterus. Recent developments in the treatment of uterine fibroids include medical treatment with progesterone receptor modulators and surgery. These surgical procedures include uterine artery embolization, high intensity focused ultrasound, ligation of uterine arteries, and MRI guided laser ablation. The size and numbers of fibroids are an important factor determining which option to use. Myomectomy is still the surgical procedure of choice for multiple enlarged fibroids. Recent literature suggests that with improved access to blood transfusion and the widespread use of prophylactic antibiotics, morbidity and length of hospital stay following Laparoscopic Myomectomy is comparable to laparoscopic hysterectomy. [4]

## 2. Case

A 45 year old unmarried woman presented to the hospital with menorrhagia and dysmenorohhea since 2 - 3days. She had history of blackouts in the morning. There was no history of nausea, vomiting, weight loss or loss of appetite. There was no history of bowel or bladder problems. She achieved menarche at 11 years and had no other menstrual problems. She was unmarried and denied any sexual activity or hormonal intake. She had a past history of laparoscopic myomectomy 13 years ago. There was no significant family history. On examination she was of average height and weight. On abdominal examination there was a firm mass arising from pelvis reaching up to the 26 weeks. The mass was firm irregular and non - tender, not moving sideways. Investigations were carried out immediately and her Hb was found to be 4 gm/dl. Patient was shifted to ICU where she was hemodynamic stabilized by giving 6 units of blood and other blood products. She was also given hormonal treatment. Ultrasound showed an enlarged and bulky uterus with multiple fibroids with degenerative changes and endometrial indentation, largest fibroid was 7.1 x 7 cm intramural, ET - 10mm, bilateral ovaries normal. The patient's attendants were counselled about the diagnosis of uterine fibroids and need for surgical intervention later. Patient was discharged from the ICU with Hb of 12 gm/dl.

She was then counseled for a laparoscopic hysterectomy, but patient was strongly willing for a myomectomy due to her

keen wish to get married and conceive. After written and informed consent regarding the same, Diagnostic hysteroscopy with laparoscopic myomectomy was planned.

Hysteroscopic findings revealed an enlarged uterine cavity with distorted endometrium. There was a large fundoanterior Figo grade 0 submucosal fibroid, a small Figo 2 fibroid and multiple small submucosal seedling fibroids. Laparoscopic finding revealed a 26 weeks size uterus with multiple fibroids with anatomic distortion of the uterus. Multiple fibroids ranging from Figo 2 - 5 noted on anterior, posterior, lateral walls of the uterus.

A total of 36 fibroids where removed laparoscopically by morcellation.210 cc of 10%vasopressin was used to reduce blood loss and proper delineation of the fibroids. The surgery lasted for 5 hours, with blood loss of 600cc. Interceed placement was done to reduce the adhesions. There was no need for any blood transfusion. Patient was discharged on postoperative day 2. Postoperatively she was given GnRH agonist for 3 months for hormone suppression.

The subsequent histopathological report showed fibroids as benign leiomyomas with degene ration

## 3. Discussion

Uterine fibroids are the most common benign tumors that develop in the muscular wall of the uterus [5] they affect 20 - 50% of women of reproductive age [6]. Patients with multiple fibroids had significantly more abnormal uterine bleeding. In recent years, scientific research has brought new insights on uterine leiomyoma biology. The development of fibroids has been shown to be dependent on sex steroids, especially progesterone [7, 8] and many leiomyomarelated growth factors have been identified such as epidermal growth factor, plateletderived growth factor, transforming growth factor beta, insulin - like growth factor, activin, and myostatin. Nullparity, heredity, black race, obesity, polycystic ovary syndrome, hypertension and diabetes mellitus are associated with increased risk of uterine fibroids [9]. If uterine leiomyoma is suspected, the initial step is a pelvic examination, but myomas are difficult to palpate unless they are very large. The preferred imaging modality for the initial evaluation is ultrasonography because it is the least invasive and the most cost - effective investigation. MRI defines the anatomy of the uterus and ovaries, but availability and high cost are serious limitations. [10] It is recommended that the treatment for leiomyomas should be individualized, as both the symptoms severity and the patient's desire to preserve fertility are important factors in determining what type of treatment should be performed. Asymptomatic fibroids must be kept under observation; but rarely uterine leiomyoma's may suffer a sarcomatous degeneration. Uterine artery embolization produces infarction of myomas with low incidence of adverse effects. Medical management (Gn - RH agonists) is efficient for small myomas and in preoperative treatment to decrease tumors volume and blood loss before myolysis, myomectomy and hysterectomy. However, it is costly with significant risk of recurrence. Surgical treatments includes hysterectomy, myomectomy, and myolysis. Laparoscopic myomectomy is associated with minimal blood loss, rapid recovery time and preservation of fertility. Perioperative and postoperative possible complications (hemorrhage, injury to bowel and urinary tract, infections, hematomas) were avoided using adequate surgical management and carefully perioperative care.

## 4. Conclusion

Laparoscopic myomectomy is reliable procedure in the presence of multiple or enlarged myomas with low complication rate, shorter hospital stay, lesser postoperative pain and satisfying long term results. It should be preferred particularly for women desirous of fertility irrespective of age.

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